

2 26. The stent of claim ¹25, wherein at least some of the cylindrical elements are comprised of a generally sinusoidal pattern.

3 27. The stent of claim ²26, wherein the generally sinusoidal pattern of the at least some of the cylindrical elements is continuous.

4 28. The stent of claim ²26, wherein the generally sinusoidal pattern is comprised of a plurality of peaks and a plurality of valleys.

5 29. The stent of claim ⁴28, wherein the plurality of peaks of the cylindrical elements are out of phase.

6 30. The stent of claim ⁵29, wherein the at least one weld connection attaches adjacent cylindrical elements at the peaks.

7 31. The stent of claim ⁶30, wherein the at least one weld connection attaching adjacent cylindrical elements at the peaks are circumferentially offset from one cylindrical element to the next.

8 32. The stent of claim ⁶30, wherein the at least one weld connection attaching adjacent cylindrical elements at the peaks are circumferentially aligned along the stent longitudinal axis.

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33. The stent of claim 25, wherein only one weld connection attaches adjacent cylindrical elements to each other.

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34. The stent of claim 33, wherein the only one weld connection attaching adjacent cylindrical elements to each other are circumferentially offset from each other.

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35. The stent of claim 25, wherein each cylindrical element has a length and a diameter, the length of each cylindrical element being less than the diameter of the cylindrical element when the stent is in an unexpanded and uncrimped configuration.

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36. A longitudinally flexible stent for implanting in a body lumen, comprising:
a plurality of cylindrical elements having an undulating pattern of peaks and valleys, the cylindrical elements being generally aligned along a common longitudinal stent axis so that the peaks are out of phase, the peaks of one cylindrical element point toward the peaks of an adjacent cylindrical element; and

a weld connection for attaching one peak of one cylindrical element to an adjacent peak of an adjacent cylindrical element so that the plurality of cylindrical elements are attached along the common longitudinal stent axis thereby forming the longitudinally flexible stent.

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37. The stent of claim 36, wherein the plurality of cylindrical elements includes only two cylindrical elements.

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The stent of claim 36, wherein the plurality of cylindrical elements includes more than two cylindrical elements.

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39. The stent of claim 36, wherein the plurality of cylindrical elements includes a first cylindrical element, a second cylindrical element and so on up to an N number of cylindrical elements.

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40. The stent of claim 39, wherein a first weld connection attaches the first cylindrical element to the second cylindrical element, a second weld connection attaches the second cylindrical element to the third cylindrical element, and so on to the Nth cylindrical element.

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41. The stent of claim 40, wherein the first weld connection is circumferentially offset from the second weld connection, the second weld connection is circumferentially offset from the third weld connection, and so on for each of the N cylindrical elements attached by weld connections.

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The stent of claim 36, wherein each cylindrical element has a length and a diameter, the length of each cylindrical element being less than the diameter of each cylindrical element.